DETERMINANTS OF USE OF A PAEDIATRIC EMERGENCY DEPARTMENT

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DETERMINANTS OF USE OF A PAEDIATRIC EMERGENCY DEPARTMENT

by

© Shirley Ann Campbell, R.N.,B.Sc.N.

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ABSTRACT

The purpose of this study was to establish the determinants that influence a patient's choice in seeking medical care in an emergency department. The study was conducted at the Janeway Child Health Centre, St. John's, Newfoundland, in order to study paediatrics, specifically.

Data was collected from a random sampling of users over a period of six weeks. This yielded a 13 percent sample, all of whom were interrogated by trained interviewers during the study period.

Various hypotheses were tested by a questionnaire. This instrument was of a form similar to that utilised by others but modified slightly to accommodate special paediatric characteristics.

Findings indicated that a high percentage (58.1%) of users of the emergency department could be categorised as "non-urgent" by medical classifiers. This proved to be similar to the findings of others in different Provinces, and in other countries.

Many of the reasons for non-urgent usage of emergency departments put forward by others and incorporated into the questionnaire were not validated by

this study. However, this study concludes that a high percentage of users are referred to the emergency department by the private physician or asked to return by an emergency department physician at a later date.

The study also indicates that patterns of usage of this emergency department are changing and public demands on the facility for non-urgent use will probably increase. Inherent in the reported responses are factors which could be influenced by the hospital, by education of the public, or by regulation which could modify the demand if so desired.

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CHAPTER I

STATEMENT OF PURPOSE

Over the past two decades many studies have been conducted that indicate a marked increase in the utilisation of hospital emergency departments. These increases usually are reported as greater than the increase in out-patient visits or in-patient admissions. On a large scale national basis, for example, Roth reports an astonishing 257 percent rise in emergency department visits in the United States during the period 1955 - 1967.[1] Other studies report on groups of hospitals or on individual hospitals in North America and all confirm a similar growth pattern.[2-7] This phenomenon is not restricted to North America since similar results have been obtained from studies in other countries such as Great Britain and Australia.[8-11] This is typified by the findings of Holohan et al[9] who described an increase in emergency department visits in three hospitals in the Newcastle-upon-Tyne area from 86,000 in 1961 to 181,000 in 1971, an increase of over 100 percent in ten years.

Many suggestions have been made as to the reasons for such increases ranging from local traffic problems to

doctors, themselves, as causes of the increased demand for treatment in emergency departments. It is the purpose of this study to analyse in detail the characteristics of patients using an emergency department in order to identify the reasons as to why care is sought from this source rather than from a private physician. It is also the purpose of this study to determine whether or not non-urgent cases are in part responsible for the increasing demand for emergency department services. Some studies have set about with a similar purpose, but few have dealt specifically with the occupation of the paediatric emergency department in a paediatric hospital. To establish a data base, a questionnaire was developed (as described later), interviews conducted, and the results reduced. These were analysed and the results set out in Chapter VII.

CHAPTER II

BACKGROUND

A. General

Many reasons have been put forward as to why emergency departments should be experiencing such a heavy demand for its services. Specific reasons vary from city to city and even from hospital to hospital within a city. Generally, however, reasons for the increased demands on services usually can be categorised into several distinct groups. These were defined by Holohan et al[9] in the British system and were found to be of two general orientations; the "Patients' Reasons" for self referral to an emergency department and the General Practitioners' explanation for the increasing demands on emergency departments.

Holohan found that when questioned as to the reasons for going directly to a hospital rather than to a physician's office, the patients' response differed considerably from the reasons expressed by general practitioners. The patient responses were categorised as follows:

1. Availability of hospital care - Hospital has no fixed hours of care as does the physician.

2. Appropriateness of hospital care - Better diagnostic facilities in hospital.

3. Accessibility of hospital care - Proximity of hospital or easier public transport.

4. Automatic reaction - The hospital is there to help the sick.

5. Anticipated Referral - The assumption that the patient will be referred to the hospital by the doctor.

The general practitioners' explanations took the following form:

1. Patient attitudes - Hospital regarded as an "open house" and patients will not wait for physician availability. This characteristic equates with the patients' response in 1, above.

2. Increase in practice organisation - Leads to secretarial protection of doctors so that patients with obvious problems are referred to casualty departments by non-medical personnel.

3. General attitudes in Society - People feel there should be an instant care for the most trivial deviation from health. This is fostered by news media and films and television shows depicting expert hospital services.

4. Medico-legal reasons - Doctors in emergency would be in difficulty if they refuse to see a patient.

5. Hospital Organisation - Patients are impressed with the overtreatment given in emergency departments and are of the opinion that specialist views are more easily obtained.

Incorporated in all the above categories are the reasons one usually finds cited in the literature for the increasing pressures being experienced in emergency departments in North America.

Others have defined the reasons as to why emergency departments are experiencing an increased workload in greater detail. Vaughn[12] suggests that a shortage of physicians and their desire for regular working hours is a major factor. He also cites the declining frequency of house calls by physicians, population mobility, the resulting lack of a family physician, and changing public attitudes about out-patient facilities as factors which should rank high on a list of reasons. There are differences of opinion as to which reasons are major causes and which are minor. This inability to determine what are major and what are minor factors make it difficult to correct for the situation.

Roth[1] suggests that both laymen and medical personnel attribute the following factors for the increased usage of the emergency department:

1. It is open twenty-four hours a day every day of the year.
2. No appointment needed.
3. If one's case is obviously urgent, he will probably be attended to quickly.
4. Diagnostic and treatment facilities are near at hand.
5. Quick in-patient admission is possible, if necessary.
6. Specialists are more or less readily on call.

These considerations are obviously similar to those described by Holohan, above and could be easily categorised into the groupings so described.

On a broader scale, Gibson, et al[13] in a major review of Chicago hospital emergency department surveys suggested that five general streams of demand exist in utilisation of emergency departments:

1. Accidents,
2. Patients lacking a regular family doctor,
3. After hours "stand-by" for private physicians,
4. Primary medical care for the indigent, and
5. Staff physicians examining their own patients.

Again, these represent similar conclusions put

forward by other investigators regardless of locale so that the wide spread problem seems to be caused by similar factors.

B. Canadian Background

A study done at Humber Memorial Hospital, West Ontario[5] illustrates the increase in the utilisation of an emergency department in a Canadian setting. This study cited the "non emergent emergency" as the foremost reason for the increase. The study also suggested that a shortage of physicians in the area had brought the gradual decline in close physician/family relationship which had existed previously. The study notes that the tendency of the physician to develop group practices contributes to the decline in the physician/family relationship. In a large group practice a patient would be unlikely to get his own physician after hours. Further, in the Humber Memorial Hospital study, it was found that the physicians themselves were contributing to the increasing workload in the emergency department. This occurred since the physicians often request their patients to come to the emergency department for examination and treatment in order to conserve the physicians' time and energy.

Vayda reported on studies completed at St. Joseph's Hospital in Hamilton, Ontario.[14] These studies were carried out to characterise the usage at the St. Joseph's Hospital emergency department and to identify determinants of utilisation. These studies also attempted to estimate the proportion of "emergent, urgent and non-urgent" visits. It was found that 5.6 percent could be classified as emergent, 60.7 percent urgent and 33.7 percent were classified as non-urgent. Although 90 percent of those studied could be identified with a family physician, over 52 percent came directly to the emergency department without contacting the physician. This study also concluded that the emergency department acts both as a primary centre and as a physicians' office, especially during off hours and only to a much lesser extent as the prime source of medical care for those without family physicians.

Similarly, studies conducted in Saskatoon[15] conclude that the majority of patients came of their own volition but in this instance 45 percent were sent on the advice of their private physician - a higher percentage than is usually recorded. By way of comparison, in the United States a major study in the State of Michigan[12] found that approximately 35 percent of the emergency department visits

were the result of a physician suggesting that the patient go to the hospital.

C. Newfoundland Background

Few studies exist that have explored the emergency departments of Newfoundland hospitals. An unpublished study, a medical student project, was performed at the St. John's General Hospital.[16] This study examined the utilisation of the emergency department over a one week period. This survey indicated that 65 percent of the patients could be categorised as "non-emergent". No effort was made in this survey to determine why the emergency department was utilised but was directed more to waiting times and organisational procedures.

The second Newfoundland study conducted in March 1972 was also a medical student project.[17] This study was directed at paediatric patients only and utilised the Janeway Child Health Centre, St. John's, Newfoundland as its model. (Since the same model has been used for this thesis, some of the findings of this student survey will be reported on and compared in Chapter VII.

This survey was conducted over a one week period but due to limitations of time and personnel, the sample could not be considered valid. However, it is of interest

to note that 55.5 percent of the patients were considered to be "non-urgent" by the interviewer.

D. Paediatric Background

Few studies which deal solely with children and their use of emergency department services can be found in the literature. One major study was conducted at the Vancouver General Hospital, Vancouver B.C. Canada.[18] Here, Robinson developed a study to assist in planning a new hospital for children and adolescents and sought to establish what types of patients would use the new facility, especially the emergency department. The results for types of users closely approximated general hospital findings in that 11 percent could be categorised as "emergent", 62 percent as "urgent" and 26 percent classified as "non-urgent". As in other studies they also concluded that the existence of a high percentage of non-urgent cases is evidence that patients are interested in using the hospital emergency department for purposes other than pure emergency and accident functions. This paediatric study again cited reasons similar to those others had found for the increase in demand for services from the emergency department. These included the use of the emergency department as a meeting place for the physician and the patient likely to be

admitted to the hospital, the performance of procedures in the emergency department formerly carried out in a physician's office and the use of the emergency facilities by all segments of the community as a substitute for unavailable private care.

Some investigators have analysed their studied population by age. For example Weinerman[3] notes that over 50 percent of patients under 4 years of age could be classified as "non-emergent", but most published studies do not elaborate by age.

E. Background Summary

Many of the factors noted above indicate the presence of a phenomenon; the appearance of the "non-urgent" patient in the emergency department seeking care for conditions of a non-critical nature and which may have been with the patient for a considerable period of time. A study at Cornell,[7] which indicated a 120 percent increase in emergency department visits in an 8 year period, found that 42 percent of all visits could be categorised as "non-urgent". Most other studies support this and have indicated that many of the emergency department visits are not "real" emergencies.

A review of the literature yields an interesting sample that reinforces this notion. Table I provides a sample summation of several studies that have reached similar conclusions.

Roth[1] reported on studies conducted at five hospitals on both the east and west coast of the United States. His findings indicated a "non-urgent" rate range of between 88 percent and 92 percent; considerably higher than those reported by others.

The percentages range widely, due, no doubt, to the fact that all studies did not use similar definitions, nor were all investigators interested primarily in the "non-urgent" user of emergency departments. However, the relatively high percentages noted in all reports indicate that the phenomenon is wide spread and of increasing concern to hospitals.

To summarise the background for this thesis then, one finds that:

A. Emergency departments, internationally, are experiencing a rapid growth rate in utilization.

B. Emergency departments, internationally, are now catering for many clients that do not necessarily fit the traditional emergent mould.

C. The reasons for A and B, above, are varied and complex but have been defined.

TABLE I

SOME FINDINGS ON NON-URGENT USAGE OF EMERGENCY DEPARTMENTS

Study and Locale	Percent Considered Non-Urgent (%)
Brown,[19] New England, U.S.A. (Paediatrics only)	80
Catchlove,[10] Sydney, Australia	65 *
Weinerman,[3] New England, U.S.A.	58.6
Student Survey,[17] St. John's, Newfoundland (Paediatrics only)	55.5 **
Metro Hospital Planning Council,[20] Vancouver B.C., Canada	45
Vayda,[21] Hamilton, Ontario, Canada, (a) General Hospital	44
(b) St. Joseph's Hospital	34
Vaughn and Gamester,[12] Twenty-two Michigan hospitals	42.9 ***
Gibson, et al,[13] Chicago, Ill., U.S.A.	40
Robinson, et al,[18] Vancouver B.C., Canada (Paediatrics only)	26

* Identified as those who have had an illness for more than 8 hours.

** Unpublished medical student survey, Janeway Hospital, St. John's, Newfoundland, Feb. 1973.

*** Identified as "non-trauma" as opposed to "non-urgent".

CHAPTER III

HYPOTHESES TO BE TESTED

The primary hypothesis is that a large number of children who are being seen in the Emergency Department of the Janeway Child Health Centre are of a non-emergent nature and consequently this facility is being utilised as a source of primary care. The primary hypothesis is further refined to assume that non-urgent users of the paediatric emergency department are those who need a source of care because private care is unavailable. This theory was arrived at after discussion with several hospital personnel at the Janeway Child Health Centre and after consideration of relevant available studies reported in the literature. To evaluate this hypothesis, several determinants must be analysed. These can be categorised as sub-hypotheses:

1. The relationship of the patient's family with a family physician is declining causing patients to turn to the emergency department for medical care.
2. The response of the patient to a substitute physician should his primary physician not be available is less desirable than hospital treatment.
3. Lower socioeconomic groups of the patients produce

correspondingly more users of emergency services.

4. The effect of distance and/or travel time is important in the choice of the emergency department for care.

5. The effect of conveniences of the emergency department such as parking, proximity of diagnostic facilities, no need for appointment, etc. promotes the emergency department.

6. The effect of the encouragement of the hospital staff to use its facilities adds to the demand.

7. The patient has no family doctor and therefore feels he must use the emergency department.

8. Other "spin off" determinants will be reported should they appear.

CHAPTER IV

DEFINITION OF TERMS

The following is a list of definitions and terms used in this study:

1. Family Physician - The term Family Physician is given its widest connotation and is taken to mean any physician the parent might call before arrival at the emergency department. This term is to be interpreted as synonymous with the term "private physician" and "family doctor".
2. Emergency Department - The American Hospital Association[22] has identified the emergency department as containing those facilities and services provided for the management of out-patients coming to the hospital for treatment of conditions determined clinically or considered by the patient or his representative to require immediate medical care in the hospital environment. The term is to be interpreted as synonymous with such terms as Emergency Room, Accident Room and Casualty Room.
3. Emergency - An emergency is defined by the American Hospital Association[22] as any condition that, in the

opinion of the patient, his family or whoever assumes the responsibility of bringing the patient to the hospital, requires immediate medical attention. This condition continues until a determination has been made by a health care professional that the patient's life or well being is not threatened.

4. True Emergency - The American Hospital Association[22] has defined a true emergency as any condition clinically determined to require immediate medical care. Such conditions range from those requiring intensive immediate care and admission to the hospital to those that are diagnostic problems and may or may not require admission after work up and observation.

The urgency rating used for this study was described and defined by Weinerman[3] as follows:

Emergent: Condition requires immediate medical attention; time delay is harmful to patient; disorder is acute but not necessarily severe.

Urgent: Condition requires medical attention within the period of a few hours; there is possible danger to the patient if medically unattended; disorder is acute but not necessarily severe.

Non-urgent: Condition does not require the resources of an emergency service; referral for routine medical care may or may not be needed; disorder is non acute or minor in severity.

CHAPTER V

POPULATION AND EXPERIMENTAL SETTING

A. Physical Environment

The setting for the research project was the Dr. Charles A. Janeway Child Health Centre (hereinafter called the Janeway). The Janeway was established in 1966 in St. John's Newfoundland, Canada. This institution is a government sponsored agency which usually restricts treatment to patients under the age of 16. It provides the only children's care for the city of St. John's and is the province of Newfoundland's major referral centre for paediatric diseases. Its major catchment area is the Avalon Peninsula which includes St. John's. The Avalon Peninsula has a population of approximately 250,000; approximately one half in metropolitan St. John's and one half dispersed over the rest of the Peninsula. The hospital is affiliated with Memorial University of Newfoundland Medical School and provides the primary source of paediatric patients for Medical School students.

The stated guidelines of the Janeway are:[23]

> ".... dedicated solely to the general treatment and care of children and its objective is to provide health services including prevention, diagnosis and treatment of diseases; as well as rehabilitation and the promotion of good health standards for children."

The Janeway has a total bed count of approximately 225. Admissions are approximately 7,000 per year and the average occupancy is 80 percent. The bed count varies depending on the time of year and in recent years closure of wards at certain times due to lack of staff has decreased the bed count.

The hospital provides a full range of specialty medical services and has a large number of medical support services backing the specialties.

The hospital is located in an area formerly occupied by a U.S. Air Forces base. The hospital was converted to a paediatric hospital in 1966 from its previous use as a military hospital. The neighbouring residences were also former military establishments and are currently used for middle class housing. The population density in the immediate area is relatively low but a new development to the north east of the hospital in land that was for the most part unoccupied at the time of this study, could increase

the demand. One entire side of the hospital site is bounded by a river and golf course. No industrial, commercial or service functions are in the area so that transients are almost non existent.

This should be kept in mind when comparing this study with those performed elsewhere since most other hospitals are mid city and therefore influenced to some degree by inner city or urban problems.

The emergency department operates on a 24 hour 7 day-a-week basis. It is under the direction of an Out-patient Co-ordinator who, at the time of the study, was a qualified medical doctor. All patients that present themselves are seen and none are turned away. A unique feature of the emergency department is that during the day patients are met by a Special Receptionist who, after a broad assessment, directs the patient to either the emergency room proper or to a special "walk-in clinic". The hospital has just recently developed this clinic especially to handle the increasing number of non-urgent patients. This "walk-in clinic" is operational from 0900 to 1530 hours after which time all cases are seen in the emergency room proper. The "walk-in clinic" is under the direction of a Medical Supervisor who reports to the Out-patient Co-ordinator.

The Special Receptionist must make a judgement as to whether or not the case is an urgent one and in fact acts as a type of triage officer. The type of children seen in the "walk-in clinic" tend to be those with an upper respiratory infection, those who require suture removal, those requiring a throat swab and other equivalent type of treatment and/or problems. The "walk-in clinic" is staffed by either a hospital paid resident physicians or by rotating residents and nurses and nursing assistants. It is located adjacent to the emergency room and is within the emergency department.

The main emergency room is staffed by resident paid private physicians, rotating residents, interns, clinical clerks, nurses and nursing assistants. Unfortunately, the numbers of staff fluctuate due to the non availability of staff at certain times. This results in staffing patterns that can be excessive for the numbers to be seen at certain times while at other times staffing is inadequate. The numbers of patients arriving at the hospital are also unpredictable and thus present added staffing problems.

B. Statistics

Table II illustrates the out-patient growth at the Janeway for the period 1967-1973; Table III illustrates the emergency department visits during the same period.

TABLE II

OUT-PATIENT VISITS, 1967-1973
JANEWAY CHILD HEALTH CENTRE

Year	N. Visits	Percentage increase over previous year (rounded)
1967	4,163	
1968	11,071	166
1969	16,554	50
1970	18,810	14
1971	27,367	45
1972	32,767	20
1973	34,375	5

TABLE III

EMERGENCY DEPARTMENT VISITS, 1967-1973
JANEWAY CHILD HEALTH CENTRE

Year	N Visits	Percentage increase over previous year (rounded)
1967	12,144	
1968	19,663	62
1969	20,518	4
1970	22,827	10
1971	25,121	10
1972	28,763	15
1973	31,404	9

As shown in Table III, the emergency department visits have grown by well over 150 percent in the seven year period. It is interesting to note that the introduction of prepaid medical care insurance in April 1969, did not lessen the demand for emergency room services. In fact the rate of rise in visits tended to accelerate. The out-patient department experienced a greater increase in usage due in a

large measure to the increasing number of specialty clinics that evolved during the period which were the formative days of the new hospital.

CHAPTER VI

METHODOLOGY AND DESIGN OF STUDY

A. General Procedure

The aim of the project was to determine the mix of urgent, non-urgent and emergent cases seen in the emergency department (see definition of terms). It was also desired to obtain demographic, epidemiological, and social indicative data on those who made up this mix in order to evaluate their characteristics.

It was decided to conduct personal interviews with those who brought a child to the emergency department at the Janeway and to determine why they used this facility rather than a family physician. The questions to be asked were compiled in a fixed format questionnaire and the parents were interviewed by interviewers who recorded the answers. The interviews were usually conducted before the patient was examined by the physician, since a wait of 15 to 20 minutes or longer was often required depending on the numbers of patients waiting to be seen and the state of the emergency department at the time. Exceptions to this occurred when a child was obviously very ill or had to be seen immediately for some other reason. In these instances

the interview took place after the examination, or if inconvenient or impossible, a telephone call was placed later, usually the following day.

The examining physician determined the urgency rating of the visit and recorded it on the patient's record. To ensure this was done, the records were pre-stamped with the three choices, emergent, urgent and non-urgent, and the examining physician had only to mark his choice. The definitions of emergent, urgent and non-urgent as described previously in the Definition of Terms were placed in appropriate places in the emergency department to ensure that all physicians utilised the same definition. The interviewer then obtained the record before it reached the Medical Records Room and along with other social indicative data contained in the medical record, copied this urgency rating onto the questionnaire.

B. Sample

In order to obtain a valid sample, it was proposed originally to span a year to provide data on all seasons of the year, as well as all hours of day, and days of week. The seasons were considered important in paediatrics especially because the school holidays in summer usually yielded more accidents than when children were in school.

The winter months might show a problem of accessibility since the roads could be snow covered. In addition children might not be as prone to climbing accidents, bicycle accidents, etc. However, due to circumstances uncontrolled by the researcher, the programme had to be carried out in a 45 day observation time from September 4, 1974 to October 19, 1974, which coincided with the resumption of the school term. This 45 day period was divided into 225 three hour sessions.

To ensure that a valid sample was drawn from all patients who entered the hospital during the 45 day period, a table of 30 random sample numbers from the 225 possible sessions were obtained from a computerised random number generator. These are as follows:

2	125	58
10	40	83
37	18	201
135	196	9
20	107	23
31	3	51
6	179	98
200	147	112
22	171	190
128	154	131

The observation times were set in blocks of 3 hours each, so that four interviewers could cope with the load. The hours from 12 midnight until 0800 were not included. This was decided after reviewing 2 previous years' records which indicated that these hours produced only 8 percent of the emergency department visits. To economise on interviewers' time, the hours included in the study were therefore limited to 0800 until 2400 hours. Robinson[18] had also reported a similar statistic in that 9 percent of paediatric patients visited the emergency department between the 2400 and 0800 hours in the Vancouver study.

The generated random numbers distributed observation periods so that every day of the week including Saturday and Sunday was covered, and every 3 hour time span was included. The table of observation times thus produced is shown in Appendix A.

C. Data Collection - Questionnaire Design

A questionnaire was devised for the purpose of data collection. This questionnaire was a modification of the questionnaire designed and validated by Dr. Eugene Vayda in the Department of Clinical Epidemiology and Biostatistics at McMaster University[21] where, as noted previously, similar studies were undertaken at the Hamilton General

Hospital and St. Joseph's Hospital in Hamilton, Ontario. These studies had been conducted in general hospital emergency department settings and therefore the questionnaire required modification in order to be suitable for paediatrics. Other modifications were required to fit with the local setting and to provide specific information for this study.

In all, 25 questions were used, many of which were multipart. The questions were grouped into several broad categories as follows:

Questions 1 - 3	General questions on the patients usual medical care
Questions 4 - 6	Specific questions on this visit
Questions 7 - 9	General questions as to why the patient came to emergency department
Questions 10 - 11	Additional specific questions on this visit
Question 12	Question on attitude of respondent toward need for medical care
Questions 13 - 17	Questions on Janeway Emergency Department
Question 18	Specific question as to why patients are using the emergency department
Questions 19 - 25	Socio-Economic questions of a confidential nature.

In two questions, a card was used to show the respondent since it was felt that verbal questioning on sensitive matters might be embarrassing. A copy of the questionnaire is attached as Appendix B.

Answers to some of the questions depended to some degree on the interpretation of the interviewer. No attempt was made to measure the degree of bias that this factor might have introduced in to the pattern of answers. However, the number of interviewers were kept to a minimum (4) so that consistent recordings were more likely.

The four interviewers were briefed on the purpose of the study, all interviewers had trial runs before the study began, and all were trained interviewers who had performed similar questionnaire studies on previous research projects. They worked closely together and met frequently before and during the study to debug the system. The interviewers worked as a team so that four interviewers were in attendance during each study interval.

D. Preliminary and Trials

Permission was sought and obtained from the Hospital Administrator, Medical Chief of Staff, Co-ordinator of Out-patient Services and the Director of Nursing of the Janeway to administer this study in the waiting room of the

emergency department. After this was agreed by all parties, the staff in the emergency department were briefed to ensure co-operation and to provide all staff with an understanding of the project.

Four paid interviewers who were trained in interviewing techniques performed all the interviews. Approximately 50 percent of the interviews took place in the emergency room proper and others took place for the most part in the lobby of the emergency department where patients waited prior to examination. Exceptions to this were some urgent and emergent cases who were interviewed after admission to hospital (sometimes next day) or after discharge, in some cases by telephone. One deceased patient was encountered during the times when interviewers were present.

The first draft of the questionnaire was prepared and evaluated. It required about 20 minutes to administer and parents often became restless and disinterested due to the long time span for administration. Also, due to the length of the questionnaire, patients were often called for examination before the interview was completed thus interrupting the interview. It was decided to shorten the questionnaire. In revision, the questionnaire response time was cut to approximately 8 minutes from the previous

20 minutes and found to be more suitable for both interviewers and the respondents.

The vital statistics information was obtained from the patient's medical record after the interview so that the respondent did not have to spend time answering questions for a second time. This was taken from the medical record by the interviewer and could be done during slow periods.

The section of the questionnaire developed by Vayda that dealt with health care was modified during the trial to suit the local situation, characteristics of the community and to direct questions specifically to paediatrics. Questions regarding health care accessibility were readily answered by the respondents during the trial period and most were receptive to the questions asked and seemed to enjoy giving their opinion of their health services. They often wished to give more information than was required but this was not encouraged.

A large section on attitudes toward health was included in the Vayda questionnaire. Unfortunately, many of these were deleted during the trial in order to decrease the question time. These specific deletions accounted for approximately 10 minutes of the 12 minute decrease in administration time. The last part of the interview which

deals with the personal, social, and economic status was sometimes difficult to administer due to the respondent's reluctance to answer personal questions. The trained interviewers were able to minimise the embarrassment to a great degree, but occasionally questions on financial status or association with welfare agencies were not answered. To minimise the embarrassment of repeating a social agency, cards were printed with all local social and welfare agencies e.g. 1. Welfare; 2. Child Welfare; 3. Social workers; so that the respondent only had to repeat a number to the interviewer. This provided a much better return to the question.

A considerable number of problems occurred during the early test interviews with the emergency department staff. The staff was not sure of the study's significance in spite of the orientation given prior to the start of the trial period. During the trial these problems were overcome by the interviewers' tact as well as by continued discussion with the staff, and co-operation was achieved by the time the trial ended.

There were two objections initially from private physicians. One felt that the questions were disturbing his patients, and another felt that too many research projects

had been carried out at the hospital. However, after full explanation, they also proved co-operative, and the trial proceeded without further problems from the emergency department staff or the medical staff.

When the detailed study commenced, the nursing staff and medical staff were most helpful, often asking the patients to wait until they could be interviewed, and generally indicating a sense of real interest in the project.

As mentioned above, the vital statistic information was obtained from the patient's record. All patients have a Medical Care Plan (MCP) number. However, MCP numbers could not be obtained for all patients since they were not recorded on all medical records at the time of interview due to various reasons. During the trial, parents were asked to provide MCP numbers but it was found to be too time consuming in a busy emergency department. Therefore numbers which were not recorded on the record were omitted. It was not the intent of the study to use the MCP number but it was felt that some follow-up use might be important if follow-up studies were made.

E. Characteristics of Study

All four interviewers had used the pre-test questionnaire and had helped modify it so that they were familiar with the final questionnaire copy. Initially, the revised questionnaire required approximately 8 minutes to administer, but by the midway point in the study, the time required was often 5 minutes or less to administer due to the familiarity of the interviewers with the questionnaire.

Parents were most usually the respondent, but a grandparent, guardian or the person that escorted the child to hospital was also interviewed. Table IV indicates the relationship of respondents to patients encountered during the study.

As can be seen in Table IV, 87.6 percent of the respondents were parents.

Taxi drivers, or others who merely provided transportation were not interviewed nor were police or ambulance drivers.

Data was not collected in only two cases. One was a deceased patient and the other was the result of an auto accident which occurred some distance from St. John's, which involved parents as well as the child. Two children were

TABLE IV

RELATIONSHIP OF RESPONDENT TO PATIENT

Respondent	Number	Percent
Mother	283	69.5
Father	74	18.1
Sibling	8	2.0
Grandparent	5	1.2
Other relative	7	1.7
Friend	7	1.7
Other	24	5.8
TOTAL	408	100.00

wards of the Children's Home and the total information on these could not be obtained as it was against regulations for guardians to answer certain questions. Most respondents willingly participated in the study, however.

Certain problems were encountered during the study period. Usually these were due to large numbers of patients appearing simultaneously at the emergency department. Usually, the four interviewers could work leisurely and complete questionnaires immediately after they completed the question portion with the respondent. However, some periods of the study were hectic, as many cases were seen and discharged in rapid succession. In spite of having four interviewers available, the parent was asked to wait in some instances. As expected, some objected to this and these were contacted as soon as practicable by telephone. Several patients may have been lost to the study in cases where no medical record was made up. Hospital personnel assured the study team that this happened very infrequently, if at all.

Occasionally a child would appear at the emergency department with no one to accompany him. In these cases the parents were contacted by telephone.

The other problem area occurring during the study was the constant concern of the interviewers that they were not interfering with the normal flow of patients. Constant reassurance that this was not happening were sought from the medical and nursing staff.

Since every patient who came to the emergency department during the study hours was included in the survey, the same patient and/or family sometimes appeared more than once for attention. Seventeen such families are recorded as returning a second time but none occurred more than twice. These were also included in the study, as number of visits to the emergency department was part of the project. As expected, much of the response to the questionnaire a second time was same as the previous interview with the exception of sections dealing with the specific illness.

F. Evaluation of Urgency Rating

Urgency ratings in the three categories of emergent, urgent and non-urgent (previously defined) were made by the examining physician in the emergency department. The physician could be a resident, an intern, or private physician depending on which medical officer was on duty at the time of the examination and/or treatment. An attempt

was made to standardise the rating procedures as much as possible. The physicians were briefed as to the definitions and classifications by the Co-ordinator of Out-patient Services of the hospital. A copy of these definitions was posted in several areas of the emergency department so that it could be referred to with ease when the physician was writing up the chart. A prominent stamp was affixed to the medical record so that the physician would remember to assign a rating. In only a few instances was it necessary for the interviewer to return the medical record to the physician to ask for a rating. This was always done immediately after it was found that the physician had failed to check the urgency rating.

G. Rationale of Sample Size

Because the study period was condensed to 45 days it was necessary to ensure that the valid sample could be obtained. All of the population in the catchment area under 14 years of age was at risk, and all had to have a reasonable chance to get into the sample. It was decided that 3 hour time spans would be most workable for the four interviewers and provide a high number of time periods (30) for interview. The trial study confirmed the usefulness of the 3 hour time spans and indicated that more than three

hour spans could produce patient loads so great that the interviewers could not cope. Time spans longer than 3 hours were also taxing to the interviewers. The 30 time spans produced 90 hours of coverage during the 45 day period.

In all, 408 respondents were interviewed. A count of the total emergency department visits during the same 45 day project was 3,014; so that the sample size represented 13.4 percent of the total users of the emergency department.

Prior to the study, and during the set-up period it was decided that a 10 percent sample should be obtained. Since the yield was 13.4 percent it was felt the sample size was appropriate because of the random cycle. This was confirmed after discussing the sample size results with supervisors of the study project.

CHAPTER VII

STATISTICAL ANALYSIS OF DATA

A. General

The findings were transferred to punch cards and the data were analysed by "Statistical Package for the Social Sciences" using an IBM model 375 computer. This provided the preliminary findings. Follow-up data reduction was accomplished on a record SPSS using the C.D.C. Cybernet programme. The convention was accepted of rejecting any associations which did not reach a 5 percent level of significance.

B. Characteristics of the Sample and Population

1. General Characteristics

The study provided responses from attenders for all days of the week and for all study intervals. Table V outlines the spread of times by day of the week when responses were gathered.

No conclusion should be drawn from Table V since the number of time periods for each day varied due to the random sampling technique. The number of study periods by day of the week are tabulated in Table VI.

TABLE V

VISITS BY DAY OF WEEK

Day	Visits	
	N	Percent of total
Sunday	42	10.3
Monday	36	8.8
Tuesday	84	20.6
Wednesday	64	15.7
Thursday	37	9.1
Friday	53	13.0
Saturday	92	22.5
TOTAL	408	100.00

TABLE VI

PERIODS OF SURVEY BY DAY OF WEEK

Day	Number of Time Spans
Sunday	4
Monday	2
Tuesday	6
Wednesday	5
Thursday	3
Friday	4
Saturday	6

Naturally the higher number of time spans would yield the highest number of respondents as is shown for Tuesdays and Saturdays (6). No significant difference is shown where the number of time spans are equal.

2. Age

The age and sex of the patients was also recorded. These are shown in Table VII.

It can be seen that the earlier age brackets tended to produce a proportionally higher usage factor. The study sample was summarised into the more conventional five year age brackets and compared with the population of risk. The results of this comparison is set out in Table VIII.

One can only speculate on the relatively high incidence of visits found in the 0 - 4 age bracket. A factor might be that since the study period coincided with the commencement of the school term, some impact on the use of emergency services could be expected. Since school attendance would tend to lessen the number of school age children requiring emergency services the non-school age children would become proportionally greater.

However, a comparison with findings reported by Robinson[18] indicates that a similar high percentage of children under 5 years utilise the emergency department.

TABLE VII

PATIENT SAMPLE BY AGE AND SEX

Age in Years	Male	Female	Total	Percent
0 - 1	12	9	21	5.1
1 - 2	23	21	44	10.8
2 - 3	17	20	37	9.1
3 - 4	18	16	34	8.3
4 - 5	12	18	30	7.4
5 - 6	9	8	17	4.2
6 - 7	17	11	28	6.9
7 - 8	16	12	28	6.9
8 - 9	8	12	20	4.9
9 - 10	12	10	22	5.4
10 - 11	14	11	25	6.2
11 - 12	14	8	22	5.4
12 - 13	11	7	18	4.4
13 - 14	15	7	22	5.4
14 - 15	12	7	19	4.7
15 - 16	14	2	16	3.7
16	2	2	4	1.0
23	0	1	1	0.2
TOTAL	226	181	408	100.00

TABLE VIII

AGE COMPARISON OF SAMPLE WITH POPULATION OF CATCHMENT AREA (GREATER ST. JOHN'S)

Age	Sample (Percent of Total)	Greater St. John's * (Percent of Total)
0 - 4 Yrs	42.9	30.3
5 - 9 Yrs	29.7	35.9
10 - 14 Yrs	27.4	33.8

* Greater St. John's figures taken from summation of St. John's Electoral Districts based on Newfoundland 1971 Census.

(He does not compare the sample to a catchment population.) This is shown in Table IX.

TABLE IX

COMPARISON OF AGES IN SAMPLE WITH A VANCOUVER EMERGENCY DEPARTMENT SURVEY[18]

Age	Sample (Percent of Total)	Vancouver (Percent of Total)
0 - 4 Yrs	42.9	39.9
5 - 9 Yrs	29.7	30.4
10 - 14 Yrs	27.4	29.7

In Vancouver the spread by age bracket was somewhat less than that encountered in this study. This may be because the Vancouver study was done over the course of a full year. However, the highest percentage was again shown to be in the under 5 years bracket. The age factor of the study group is followed up later in this study when an analysis of non-urgent cases is made. The comparison of age distribution of the study sample with the population at risk tends to validate the characteristics of the study sample.

3. Sex

An analysis of the sex of those attending the emergency department was shown in Table VII. A comparison of the sample survey with the population of St. John's is shown in Table X, below.

TABLE X

SEX COMPARISON OF SAMPLE WITH POPULATION OF CATCHMENT AREA (GREATER ST. JOHN'S)

Sex	Sample (Percent of Total)	Greater St. John's (Percent of Total)
Male	55.4	50.6
Female	44.6	49.4

The sex distribution indicates that although males and females at risk are nearly equal, the males required greater emergency attention. This finding was also compared with that published by Robinson.[18] The Vancouver sample indicated an even greater disproportion in that 64.3 percent of the paediatric emergency visits were made by males and only 35.7 percent by females. This lends credence to a theory that males tend to require more

emergency attention than females. However, this matter was not deemed especially relative to this study and was not pursued in any greater detail except as sex will relate to non-urgent users which is described later.

4. Other General Characteristics of the Survey

Additional questions were asked to provide a broader data base for the study. Following are certain findings:

a) Age of Mother: The study showed that the mean age of the mother was 32.548 years with a mode of 29 years. By far the greatest number fell into the age bracket of 25 to 30 years (31.2%). This was as expected.

b) Birth order of Patient: The mean of the birth order of the patient was found to be 2.664 with a mode of one (38.7%).

c) Relationship of Respondent to Patient: As previously shown in Table IV, Chapter VI, over 90 percent of the respondents were from the immediate family of the patients with parents accounting for 87.5 percent.

d) Head of household: Either the respondent or spouse was head of the household in 87.2 percent of responses. Grandparents of the patient accounted for 7.6 percent and the remainder were agency or other.

e) Marital status of respondent: Most respondents (85.7%) were married with relatively few widowed, divorced or separated.

f) Number of persons living in household: The mean result was 5.58 and a mode of 4 (23%). Several respondents reported over 10 persons living in the household (19/6.3%) with the highest indicating a household size of 19.

g) Number of children under 16 in household: The mode here was 2 (27.7%) with a mean of 4.12. This correlates with the 1971 Census information for Greater St. John's.

h) Education of respondent or spouse: The survey showed that the respondent had in most cases completed Grade 10 (60.3%). The mode for Grade completion was Grade 11. Similar results were recorded for the respondent's spouse.

i) Occupation of the head of the household: The occupation grouping was developed from a list of categories of employment shown in Appendix C. Table XI provides the summation of employment categories and the respondents' answers to the question of employment.

No effort was made to equate the employment to salary groupings nor was a comparison made of the sample with the employment characteristics of the population. The

TABLE XI

OCCUPATION OF HEAD OF HOUSEHOLD

Occupation	Number	Percent of Total
Manager/Professional/Technical	90	22.1
Sales/Clerical	37	9.1
Skilled Trades	93	22.8
Semi Skilled Trades	80	19.6
Fishing/Mining/Labour	53	13.0
Housewife	10	2.5
Unemployed	38	9.3
No response	7	1.6
TOTAL	408	100.00

unemployment percentage of 9.3 percent generally equates with that given at the time of the survey for unemployment in St. John's (usually stated as 10%).

j) Involvement with Social Agencies: The study revealed that most (80.6%) patients had no involvement with social agencies. This contradicts hospital personnel assumptions that a large majority of emergency department users are associated with social agencies. Only 16.7 percent had involvement with an agency and 2.7 percent reported not to know. Welfare cases accounted for 9.6 percent of the 16.7 percent reporting social agency involvement.

5. Usual Sources of Medical Care of the Sample

Table XII shows that the usual source of medical care for the patients is the private doctor.

In spite of the high percentage of respondents who state that a private doctor is the usual source of care (74%), a large 18.4 percent also stated that the emergency department is the usual source of care is interesting. When applied to the recent yearly visitation figures for this hospital (Table III), a total of over 6,000 visits could be from those who use the emergency department as a source of primary care.

TABLE XII

PATIENTS' USUAL SOURCE OF MEDICAL CARE

Care Source	Number	Percent of Total
Private Doctor	302	74.0
Emergency Service	75	18.4
Out-patient Department	12	2.9
Other	12	2.9
None	7	1.7
TOTAL	408	100.00

Another assumption of hospital personnel not borne out by Table XII is that a high percentage of the population utilise the out-patient department as a source of primary care. The figure of only 2.9 percent indicates that such an assumption is incorrect.

6. Availability of Care

The survey also provided data which would indicate the availability of medical care for those using the emergency service. Most respondents reported that private medical care was available within 15 minutes or less. Table XIII shows that 95 percent reported that private medical care was available within 30 minutes. The question was asked for times travelling by auto from home to a doctor's office.

The population within St. John's would find private medical care nearby as one would expect in any metropolitan area. Outside St. John's, the population tends to be widely dispersed so that medical care is not usually near to hand.

It is interesting to note that only 2.5 percent (10) of the respondents did not know where private care was available. This indicates that the population in this study is aware of the sources of primary medical care.

TABLE XIII

TIME TO NEAREST PRIVATE DOCTOR FROM RESPONDENT'S HOME BY CAR

Time	Number	Percent of Total
Less than 15 min.	336	82.5
15 - 30 min.	51	12.5
30 - 60 min.	6	1.5
Over 60 min.	5	1.2
Don't know	10	2.5
TOTAL	408	100.00

The question of proximity of primary health care was followed up by a question of time by auto from the patient's home to the Janeway Emergency Department. The response for the total sample is set forth in Table XIV, below.

TABLE XIV

TIME FROM RESPONDENT'S HOME TO JANEWAY EMERGENCY DEPARTMENT BY CAR

Time	Number	Percent of Total
Less than 15 min.	191	46.8
15 - 30 min.	138	33.8
30 - 60 min.	34	8.4
Over 60 min.	42	10.3
Don't know	3	.7
TOTAL	408	100.00

This distribution is significantly different from that presented in Table XIII. Over 10 percent travelled over 60 minutes to reach the emergency department while only one percent would require such a travel time to the nearest private doctor. Approximately 80 percent were

within 30 minutes of the emergency department but, as noted previously, 95 percent of the sample were within 30 minutes of a private doctor.

The same question when asked with reference to the patient's family, increased the percentage responding that the private doctor was the usual source of medical care to 88 percent, with only 4 percent indicating that the family utilises the emergency department as a source of primary care. This implies that families are more prone to utilise the emergency department as a source of primary care for their children than they would for themselves.

Additional questions on the subject of a private physician yielded the following:

a) Eighty two percent would ask a firend or relative when choosing a family doctor while only 15 percent would ask at the hospital and 3 percent did not know.

b) An opinion was sought concerning the availability of private care. The respondents were asked "Do you feel that there are enough doctors in the area where you are living to handle the medical needs of the people there?" To this, 53.4 percent replied "yes", 36.3 percent replied "no" and 10.3 percent had no opinion. This was somewhat unexpected since the usual assumption is that

the population feels that too few doctors are available.

c) When given the possibility that everyone could have a private doctor and asked what preference they would then have for a primary source of health care only 54 percent indicated a preference for the private doctor. Twelve percent preferred another source and 33 percent had no preference. This relatively low 54 percent was unusual when compared with 88 percent who replied that they usually seek a private doctor for family illnesses.

7. Frequency of Emergency Department Usage

The respondents were asked to estimate the number of times that the family had used this particular emergency department during the previous year and including this visit. Table XV shows that most, 30.4 percent, utilised the service only once but a relatively high percentage (23.4%) utilised the service five or more times in one year. (One respondent indicated that he had utilised the service 50 times in the past year, one 40 times and one 30 times. These were not followed up for the purposes of this study.)

Vayda[14] had found that over 38 percent of respondents had made more than one visit to an emergency department during the preceding year. This was based on a sample of a

TABLE XV

USAGE OF JANEWAY EMERGENCY SERVICE IN PAST YEAR

Times Used (includes this visit)	Number	Percent of Total
1	124	30.5
2	78	19.1
3	73	17.9
4	37	9.1
5 - 9	72	17.8
10 - 20	15	3.6
20 - over	9	2.0
TOTAL	408	100.00

general hospital emergency service. As shown in Table XV, nearly 70 percent of the respondents utilised the Janeway Emergency Department more than once in the previous year. However, since more than one child in the household is usual in the sample (79.6%) a direct comparison can not be made.

The question on emergency department usage was followed by a query comparing the usage shown in Table XV with the respondents estimate of usage in the previous year. The largest percentage (37.5%) felt that the emergency service was being used more often while only 18.6 percent felt they were using the service less often. These are illustrated in Table XVI.

TABLE XVI

COMPARISON OF THIS YEAR'S USAGE WITH USAGE ONE YEAR PREVIOUSLY

Response	Number	Percent
More often	153	37.5
About the same	115	28.2
Less often	76	18.6
Don't know	64	15.7
TOTAL	408	100.00

8. Respondents Perceived Appropriate Reaction

The questionnaire was also designed to provide a detailed look at what emergency department users consider important in causing a family to seek medical care. A series of medical problems were presented and the respondents were asked to indicate whether or not they would take the child to see a doctor or telephone a doctor for each of the symptoms:

a) Sore throat or running nose for a couple of days but no fever: Agree - 31.6 percent; disagree - 64.2 percent; undecided - 4.2 percent.

b) Sore throat or running nose with fever as high as 102°F for two days or more: Agree - 93.6 percent; disagree - 2.7 percent; undecided - 3.7 percent.

c) Diarrhoea for about a week: Agree - 94.1 percent; disagree - 3.2 percent; undecided - 2.7 percent.

d) Feeling tired for several weeks for no special reason: Agree - 90.7 percent; disagree - 6.6 percent; undecided - 2.7 percent.

e) Unexplained weight loss: Agree - 92.7 percent; disagree - 4.7 percent; undecided - 2.7 percent.

The responses indicate that most respondents felt that the appropriate reaction is to seek medical advice

and/or care for all but the most common condition outlined in (a).

9. Characteristics of This Emergency Department Visit

A series of questions was developed to provide data regarding the reasons for usage of the emergency department for the specific visit encountered. It can be seen from Table XVII that most respondents could identify a reason (93%) for not using a private physician for this specific case.

Certain features of Table XVII can be compared with the results found by Vayda.[14] In the Hamilton project 20.7 percent indicated that they considered the problem to be an emergency. Table XVII shows that 27.2 percent of this study sample felt that the problem was an emergency. Vayda reported that 8.4 percent had no family doctor compared with only 2.7 percent in this study. "Out of doctor's practice hours" accounted for 26.1 percent of the Vayda cases but only 17.4 percent responded in a similar fashion in this study. It should be noted that the Vayda question was open-ended but this study provided a multiple choice approach. A higher percentage had been sent to hospital by the private doctor in the Vayda study (approximately 25%) than in the St. John's study (19.1%).

TABLE XVII

REASONS GIVEN FOR NOT GOING TO PRIVATE DOCTOR IN THIS CASE

	Reason	Number	Percent of Total
1.	Emergency services needed	111	27.2
2.	Doctor told us to come	78	19.1
3.	Doctor could not be reached nights, weekends or when needed	71	17.4
4.	Asked to return by emergency department	45	11.0
5.	Has always gone to emergency department and not considered doctor	39	9.6
6.	Difficult to get appointment with private doctor	18	4.4
7.	Has no family doctor	11	2.7
8.	No family doctor in area	2	.5
9.	Doesn't like local doctor	2	.5
10.	Emergency closer than doctor	1	.2
11.	Doctor had moved	1	.2
12.	No response, don't know or other miscellaneous	29	7.2
	TOTAL	408	100.00

However, Vayda made no mention of patients being asked to return by the emergency department. When added to the 19.1 percent physician referrals in this study, a significant total of 30.1 percent of the patients were a direct result of a physician's request that the patient to to the emergency department.

Several of these replies verify other characteristics of the population. As recorded in Table XIII, 95 percent responded that a private doctor was within 30 minutes; this would produce the extremely low percentage (0.5%) who stated that no private doctor was close by.

One usual theory is that the immediate catchment area acts as a major source of patients. However, as shown in Table XVII only one patient utilised the emergency department because it was closer than a private physician. The descriptive analysis of the location and surroundings of the Janeway in Chapter V provides additional information on this point.

As will be shown later, 61.5 percent of the respondents felt that the visit was an "emergency" yet only 27.2 percent stated that the emergency need was the main reason for not using a private doctor. The reason for this contradiction is not apparent.

Another theory about the causes for increased utilisation of the emergency department puts the blame on the unavailability of private physicians. This study indicates that 22 percent of the respondents indicated that physician unavailability was the main reason for using the emergency department. (The total of 22 percent represents the responses to questions 3, 6, 8, 9, 11 in Table XIII.)

To provide more data on this question, a series of questions were asked regarding the respondent's thoughts on the increased use of the emergency department at the Janeway. Statements were read and the respondent was asked to agree, disagree or answer undecided. The response to these questions are detailed in Table XVIII.

Several important issues are apparent in an analysis of these responses. In general, the questions are another form of the reasons usually given for the increased demand on emergency services. As previously cited, 88 percent of the study population indicated that the usual source of medical care was the private doctor. Table XVIII however, shows that 44.6 percent of the respondents felt that the emergency department offered better medical treatment than the family doctor, but only 25 percent disagreed with this statement. This indicates that even though most professed

TABLE XVIII

RESPONSES TO THE QUESTION: "THE MAIN REASON MORE PEOPLE ARE USING THE EMERGENCY DEPARTMENT IS THAT ...."

Statement	Response (in percent)			
	Agree	Undecided	Disagree	No Response
1. ... there is an increase in the amount of illness in the community	31.2	17.4	48.5	2.9
2. ... there are not enough private doctors available	66.2	10.8	19.4	3.7
3. ... it is much easier to get seen and the waiting period is less in the emergency department	42.7	16.9	36.8	3.7
4. ... the medical treatment at the emergency department is better than the treatment one gets with a private doctor	44.6	26.7	25.0	3.7
5. ... more doctors are referring their patients to the emergency department	36.2	42.6	17.6	3.4

TABLE XVIII (continued)

Statement	Response (in percent)			
	Agree	Undecided	Disagree	No Response
6. ... all various medical services such as lab tests and X Rays can be done while the patient is at the emergency department	87.5	4.7	4.6	3.2
7. ... people are much more health conscious than they used to be	83.3	7.4	7.1	2.2
8. ... the emergency department is closer than the doctor's office	20.3	15.9	60.5	3.2
9. ... parking is easier at the hospital	25.0	18.4	46.6	10.0

to have a family doctor, they would prefer to use the emergency department. That this does not necessarily imply that the physician's care is less satisfactory is shown in the response to Item 6 where a very high majority, 85.5 percent, feel that comprehensive medical back up is available at the hospital. This seems to be an important consideration in the patient's decision to use the emergency department. This was pointed out by Holohan[9] who neatly termed this as "cutting out the middle-man".

C. Primary Hypothesis

The primary hypothesis was that a major cause for the increased workload in the emergency department could be attributed to non-urgent patient demands. Support of this hypothesis is borne out in the results of the survey as shown in Table XIX.

Combining these results with those summarised in Table I in Chapter II produces the data shown in Table XX.

The Vancouver[18] study on paediatrics is probably the most closely related to this study. It is important to note that the Vancouver study yielded a significantly smaller percentage of non-urgent cases than did this study. Both utilised the same definition of terms for "emergent", "urgent" and "non-urgent" and both had similar age and sex

TABLE XIX

CLASSIFICATION OF PATIENTS

	Number	Percent of Total
Emergent	17	4.2
Urgent	147	36.0
Non-urgent	237	58.1
Unclassified	7	1.7
TOTAL	408	100.00

TABLE XX

SOME FINDINGS ON NON-URGENT USAGE OF EMERGENCY DEPARTMENTS INCLUDING RESULTS OF THIS STUDY

Locale of Study	Percent of total considered non-urgent	Comment
New England, U.S.A.[19]	80	Paediatrics
Sydney, Australia[10]	65	
New England, U.S.A.[3]	58.6	
St. John's, Nfld. Canada	58.1	THIS STUDY
St. John's, Nfld. Canada[17]	55.5	Student survey same hospital as study
Vancouver B.C. Canada[20]	45	All metropolitan hospitals
Hamilton, Ont. Canada[14]	44	
Michigan, U.S.A.[12]	42.9	Twenty two hospitals average
Chicago, U.S.A.[13]	40	
Vancouver, B.C. Canada[18]	26	Paediatrics

distributions as shown earlier. A major difference is that this study utilised a paediatric hospital while the Vancouver study was conducted in a large general hospital. Other general hospitals in the Vancouver metropolitan area cater for children and adolescents in their emergency departments but the hospital used in this study is the only source of paediatric care in the community. This might explain the lesser percentage of "non-urgent" paediatric cases found in the Vancouver study.

A medical student survey conducted previously in the Janeway Hospital was also of interest. The results of this study and the previous student sample are comparable: 58.1 percent were considered non-urgent in this study and 55.5 percent were considered non-urgent in the student survey. Similar definitions of emergent, urgent and non-urgent were used and the locale was the same. The student survey covered only one week but provided 330 completed questionnaires which represented 70 percent of the total visits made to the emergency department during the period. The "walk-in clinic", described in Chapter V, was not in existence at the time of the student survey (Feb.1973) but had been operational for approximately one year when this study was conducted. If the earlier study is

valid, it appears that the existence of a "walk-in clinic" has not significantly increased the demand for "non-urgent" care but this theory should be tested in a follow-up study at a later date. Statistics as to the referral to the "walk-in clinic" were not available during the period of the study. In addition, since the "walk-in-clinic" operated only during 0800 to 1700 hours no conclusion about its impact could be drawn relating to the total survey.

Weinerman[3] at Yale also reported a significantly higher percentage of "non-urgent" paediatric cases than does Robinson in the Vancouver study. In the Yale study, approximately 55 percent of those from birth to age 15 were reported as "non-urgent"; a figure that nearly matches the results of this study.

A Chicago study[13] used the identical definition of "emergent - urgent - non-urgent" but did not categorise the paediatric portion of its population by each of the categories so that no direct comparison can be made. However, all hospitals indicated that 40 percent were considered non-urgent.

As shown in Table XX the non-urgent ratio in this study turned out to be somewhere near the mid range of the sampling of reported studies. Unfortunately the definitions

of "non-urgent" are usually hazy or non existent so that strict comparisons should not be made since conclusions might be inexact.

No attempt was made to validate the physicians' ratings in this study. Vayda[14] had compared the urgency ratings made by physicians as they see patients in the emergency department with ratings made by an independent assessor who reviewed the patient's chart. He found some differences in interpretation, especially in the non-trauma groups. In non-trauma groups, Vayda could obtain only 80 percent agreement. As he points out, if this relatively low agreement rate exists at one institution, the differences between studies could be due to differences in classification techniques and classifications rather than to actual differences in urgency status of individual patients as reported.

Nevertheless the figure of 58.1 percent non-urgent in this study clearly indicates that a majority of patients are using the emergency department of the Janeway Child Health Centre for primary care purposes that are unrelated to emergency care.

A surprising result was encountered in the response to the question put to the respondents "Do you feel this

case was an emergency?". Table XXI shows that a high percentage of respondents did not feel that the case was an "emergency".

TABLE XXI

WAS THIS CASE AN EMERGENCY - RESPONDENT'S REPLY

	Number	Percent of Total
Yes	251	61.5
No	157	38.4
TOTAL	408	100.00

No attempt was made to elaborate on the term "emergency" by the interviewers and a single "yes-no" response was all that was required. Although the figure of 38.4 percent is less than the 58 percent non-urgent rate described, the significant number of "no" responses indicate that a high percentage have come to regard the emergency department as a source of care not necessarily associated with an emergency.

The "no" respondents were then cross tabulated with the urgency ratings set down by the physician. This produced the data for Table XXII.

TABLE XXII

PHYSICIAN'S RATINGS COMPARED WITH RESPONDENT'S RATING

Physician's Rating	Respondent's Answer: "Was this an Emergency?"			
	Yes		No	
	N	%	N	%
Emergent/Urgent	123	49	48	30
Non-urgent	128	51	109	70
TOTAL	251	100	157	100

As expected, a significant number of respondents who answered "yes" to the question and felt the visit to be an emergency were confirmed by the physician's rating. Unexpected was the high percentage (28%) of cases in which the respondent felt the case was not an emergency but were rated as either "emergent or urgent" by the physician.

The Yale[3] studies had not provided for an urgency rating as perceived by the patient. Rather, the study related the factor of "duration of current disorder" to the physician's urgency rating. Since the duration of disorder was also asked in the St. John's Janeway survey, a comparative figure with the Yale study could be established. See Figure 1.

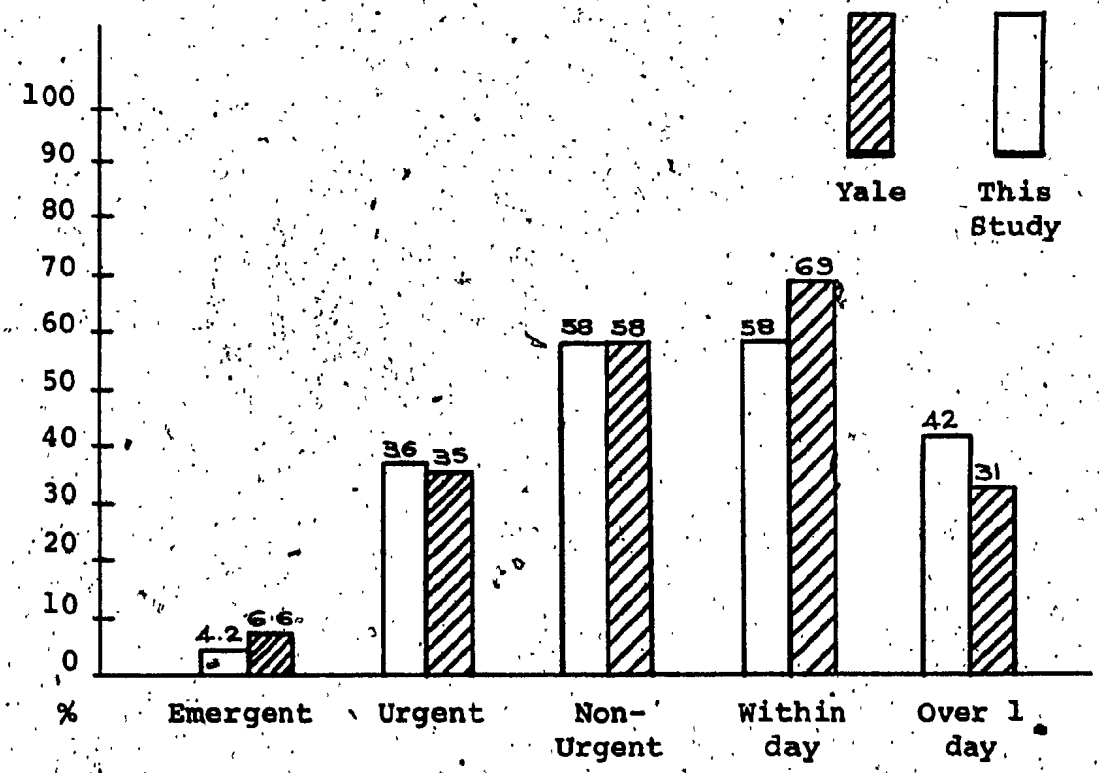

Figure 1 - Comparison of physician's urgency ratings and patients' reports of duration of disorder.

As shown, the figures are similar. It is somewhat surprising that the percentage for the short term onset was greater in the Yale figures (69%) than those resulting from this study (52%). The Yale study surveyed a general population and one would assume that parents would more quickly seek attention for their child than for themselves. Another finding that closely approximates the Yale study was the lack of significant differences in medical urgency ratings among patients reporting on various times of onset of the illness. Among those who reported the duration to be one day or less, 60 percent were medically rated as non-urgent in the Yale study, 62 percent were medically rated as non-urgent in this study.

D. Sub Hypotheses

A cross tabulation of many variables with the physician's rating of "non-urgent" was performed to test the various sub-hypotheses. Several of these provide an interesting profile of those who were considered "non-urgent" when compared with those who were considered to be "legitimate" users of the emergency service (described as emergent/urgent).

1. It was assumed that the proximity of private care might have an influence on non-urgent demands. Table XXIII shows that little difference existed between the non-urgent and emergent/urgent groups in terms of their travel time to the nearest doctor.

Therefore, it would seem that the distribution of medical care had no significant effect on the patient's use of the emergency department.

2. It was assumed that the hospital acts as a source of primary care especially for those who live near the hospital. This was tested by finding the travel time by auto for both classes of users. This is shown in Table XXIV.

In this analysis no significant difference is shown between the categories of users. This would tend to refute the theory that proximity to the emergency department is a significant factor in the demands for its service. Again, one should consider the locale of the Janeway as described in Chapter V. This sub hypothesis was further tested by an analysis of the mode of transportation to the emergency department. As shown previously for the total population, the majority arrive by auto (87%). Table XXV breaks this down by category of urgency.

TABLE XXIII

TRAVEL TIME TO NEAREST DOCTOR

Category	Travel time by Auto							
	15 min or less		15-30 min		Over 30 min		Total	
	N	%	N	%	N	%	N	%
Non-urgent	199	84	27	11.4	11	4.6	237	100
Emergent/Urgent	137	80.2	24	14.0	10	5.8	171	100

TABLE XXIV

TRAVEL TIME TO EMERGENCY DEPARTMENT BY AUTO

Category	Travel time to hospital by Auto							
	Less than 15 min		15-30 min		Over 30 min		Total	
	N	%	N	%	N	%	N	%
Non-urgent	112	47.3	86	36.3	39	16.4	237	100
Emergent/Urgent	79	46.2	52	30.4	40	23.4	171	100

TABLE XXV

MODE OF TRANSPORTATION TO EMERGENCY DEPARTMENT

Mode	Category			
	Non-urgent		Emergent/Urgent	
	N	%	N	%
Walk	2	.8	2	1.0
Bus	20	8.4	3	2.0
Car	208	87.8	147	86.0
Taxi	5	2.1	15	9.0
Other	2	.8	4	2.0
TOTAL	237	100.0	171	100.0

By far most users arrived by car in both categories and as a percentage of totals were nearly equivalent (87%/86%). Some variance is shown in that more emergent/urgent patients were brought by taxi while more non-urgent patients were brought by bus. This was as expected. Neither total, however, is significant. The fact that so few walked, in spite of local housing in the area of the hospital would tend to confirm that distance, within reason, is not a factor in the utilisation of this emergency department by non-urgent users. Another question put to the respondents dealt with the mode of transport in a slightly different way. The respondents were asked if they agreed that parking is easier at the hospital. No difference was found in the response of the non-urgent users to that of the emergent/urgent users. In both categories, approximately 46 percent found parking to be harder at the hospital while only 25 percent found parking easier. The remainder were either undecided (18%) or did not drive.

Parking at the Janeway Hospital has been a considerable problem over the years according to hospital officials. It appears, however, that transportation and parking has no significant effect on the determination of patients to use the emergency department.

3. It was assumed that users of the emergency department who were non-urgent tended to use the facility more often. This is analysed in Table XXVI which itemises the responses to the question as to how many times in the past year had the family used the emergency department of the Janeway Hospital including the current visit.

TABLE XXVI

FREQUENCY OF USAGE OF THIS EMERGENCY DEPARTMENT IN PAST YEAR (INCLUDING THIS VISIT)

No of Visits	Category: Non-urgent N	Non-urgent %	Emergent/Urgent N	Emergent/Urgent %
1	54	22.8	70	40.9
2	49	20.7	29	16.9
3	49	20.7	24	14.0
4	24	10.1	13	7.6
5	19	8.0	9	5.3
Over 5	42	17.7	26	15.2
TOTAL	237	100.0	171	100.0

Table XXVI would support the sub hypothesis that non-urgent users tended to reappear more frequently. As shown, for 40.9 percent of emergent/urgent users, the recorded visit was the only visit during the year but only 22.8 percent of the non-urgent patients fell into this category.

For non-urgent users the summation of percentages of times used from 2 to 5 totals 52 percent but for emergent/urgent users the comparable figure is 38.5 percent. In the over 5 visit bracket the two categories yielded similar results; 17.7 percent for non-urgent and 15.2 percent for emergent/urgent. This latter finding contradicts the sub hypothesis somewhat but the values, when compared with the values up to 5 visits are significantly less and are therefore less meaningful.

In regard to personal usage the respondents were asked if they would say that they are using the emergency department more often, about the same or less often than they did a year ago. If they had not used the emergency department for over one year they were categorised as "don't know". The results are shown in Table XXVII

No significant differences in the respondent's estimate of usage are shown in Table XXVII. Nearly

TABLE XXVII

RESPONDENT'S ESTIMATE OF CHANGE IN FREQUENCY OF USAGE OF EMERGENCY DEPARTMENT

Frequency	Category			
	Non-urgent		Emergent/Urgent	
	N	%	N	%
More often	89	37.6	64	37.4
Same	69	29.1	46	26.9
Less	47	19.8	29	16.9
Don't know	32	13.5	32	18.8
TOTAL	237	100.0	171	100.0

38 percent of each category felt that they were utilising the emergency department more frequently. Similar percentages developed for those who indicated that they had not used the emergency department for over one year (non-urgent 15.6%; emergent/urgent 18.8%). In general, Table XXVII indicates that non-urgent users are increasing their demands at a rate similar to that found for the emergent/urgent users.

The sources of information as to how the respondent first learned about the emergency department facilities indicated some different characteristics. The non-urgent users indicated that they had always known or been informed by relatives and friends in 66 percent of the responses. For emergent/urgent users the percentage was only 55 percent. This shift was also shown in the percentage who said that a family doctor was the source of information. For non-urgent only 11.4 percent indicated that a private doctor was the source as compared with 19.9 percent for emergent/urgent cases. This would be explained by the fact that a higher percentage of emergent/urgent had called their family doctor prior to coming to the emergency department (21.2% for emergent/urgent vs. 17.8% for non-urgent).

D. Other Findings

A major multiple choice question was developed and introduced which combined many of the sub hypotheses. This was recorded for the total population in Table XVII. This was cross tabulated for non-urgent users so that their characteristics could be further developed. This is shown in Table XXVIII.

Several interesting features of the two categories appear in Table XXVIII. The percentage of patients referred to the emergency department by private doctors for the non-emergent cases (17.8%) was nearly equal to that for the emergent/urgent cases (21.2%). This relatively high incidence of cases that were termed "non-urgent" yet referred by a doctor to the emergency department could be attributed to either the lack of time available to the doctor or to the lack of communication between doctor and patient. In any case, the percentage of doctor referrals to the emergency department is a significant factor in the utilisation statistics. The number referred back to the emergency department by the emergency department doctor was 16.1 percent for non-urgent cases but only 4 percent for the emergent/urgent cases. This difference would be expected since cases referred back to the emergency

TABLE XXVIII

MAIN REASON FOR NOT USING A PRIVATE DOCTOR
FOR THE PATIENT THIS INSTANCE

Response	Category			
	Urgent/Emergent		Non-urgent	
	N	%	N	%
1. No family doctors in the area	0	0	2	.8
2. Difficult to get appointments with family doctor	9	5.3	11	4.7
3. Doctor couldn't be reached when needed	27	15.8	44	18.6
4. Doctor in the area is unable to accept new patients	0	0	0	0
5. Doctor has retired, moved or deceased	0	0	1	.4
6. New to area, has no family doctor	6	3.5	5	2.1
7. Has always gone to emergency department and does not consider private doctor	10	5.8	29	12.3
8. Doesn't like the doctor in the area	1	.6	1	.4

TABLE XXVIII (continued)

Response	Category			
	Urgent/Emergent		Non-urgent	
	N	%	N	%
9. Hospital emergency department is closer than doctor's office	1	.6	0	0
10. Doctor told patient to go to emergency department	36	21.2	42	17.8
11. Felt emergency department services are needed	67	39.2	44	18.6
12. Emergency department doctor asked patient to return	7	4	38	16.1
13. Other	7	4	20	8.4
TOTAL	171	100.0	237	100.0

department by an emergency department doctor would rarely be an "emergent or urgent" case. Nevertheless, it is important to note that hospital personnel have stated that referrals back to the emergency department are rare; a comment not borne out by this study. This question might be investigated further.

When responses 10 and 12, Table XXVIII, are totalled, it indicates that non-urgent users were referred to the emergency department by physicians in 33.9 percent of the non-urgent cases. Referrals by physicians seems to be one of the major factors, then, in the demand by non-urgent users of the emergency department.

As one would expect, a higher percentage of non-urgent users stated that they do not consider a private doctor when seeking medical care (Item 7, Table XXVIII). The response of the total population to this question, as noted before in Table XVII, is interesting and provides a clue as to the total number of users who tend to use the emergency department as a source of primary care. These total 39 cases or nearly 10 percent of the total users. Naturally, many of the other respondents might also consider the emergency department as a source of primary care but their responses would be incorporated into many of the

other reasons outlined in Table XXVIII.

The only other significant response dealing with the doctor is shown in Item 3, Table XXVIII, where in both categories a rather large number stated that they could not reach the doctor when needed. This did not seem to influence the non-urgent users (18.6%) to a much greater degree than it did the emergent/urgent users (15.8%). It did verify one of the sub hypotheses, however and tends to corroborate suggestions by others that the non availability of physicians is a major factor in the increased usage of emergency departments.

Other physician oriented responses failed to show any causative for increasing demands on the emergency department. As shown in Table XXVIII, the proximity of local doctors, the lack of a private doctor and the inability to get appointments were all insignificant in terms of the total response. These had all been considered probable reasons as to why the demand was increasing.

A surprisingly low figure was found in the response to the statement "Felt emergency department services were needed". One would assume that the need for emergency services would have commanded a much higher percentage than was recorded. As expected, a higher percentage of

emergent/urgent users (39.2%) felt that the emergency department services were needed than did the non-urgent users (18.6%). However, it could be fairly stated that the response to Item 10 in which the doctor had suggested that the patient go to the emergency department should be coupled to the users feeling that the emergency department was needed. This would place the majority of emergent/urgent users in the category where the need for emergency services were of prime consideration (60.4%). The combined comparable figure for non-urgent users was not nearly as great and totalled only 36.4 percent. This would indicate again that non-urgent users tend to realise that the case is not emergent or urgent but utilise the emergency department in spite of the nature of the illness.

Very little difference was found in the socio indicative characteristics of the two categories. Generally, similar percentages were married, a similar degree of education by the respondent or spouse was achieved for each category and the average number of persons living in the household was the same. Therefore distinctions of non-urgent users could not be found in the responses to socio economic questions. Sex distributions of the patients were also similar. Non-urgent males (54.4%) were slightly less than

the percentage for emergent/urgent users (56.7%) with a corresponding slight shift in female percentages.

Age characteristics did show some greater variance than did sex distribution, however. Table XXIX illustrates this.

TABLE XXIX

AGE DISTRIBUTION OF PATIENTS BY CATEGORY

Category	Age			
	0-4 Yrs	5-9 Yrs	10-14 Yrs	15-over Yrs
	Percent of Total			
Non-urgent	38.4	28.7	26.1	6.8
Emergent/Urgent	43.9	27.4	25.7	2.9

As shown, the younger age group tends to produce a higher proportion of emergent/urgent users although the difference is not great. When looked at in more detail, the major difference was found, as expected, in the years 2, 3 and 4 where more emergent/urgent cases were encountered; a factor often expressed as common in paediatrics. Some

slightly higher usage of the emergency department is seen in the over 10 year age groups, but again the numbers do not seem significant.

It was suggested by hospital authorities that patients connected with a social agency were major users of the emergency department. It was inferred also that non-urgent users tended to have a social agency connection. The tabulation in Table XXX refutes this suggestion.

TABLE XXX

USERS BY URGENCY RATINGS CROSS TABULATED WITH SOCIAL AGENCY INVOLVEMENT

Category	Agency Involved					
	Yes		No		Total	
	N	%	N	%	N	%
Non-urgent	44	18.6	193	81.4	237	100
Emergent/ Urgent	33	19.3	138	80.7	171	100

Almost identical percentages are shown for both categories of users. In addition, as described earlier, agency associated cases accounted for less than 20 percent

of the emergency department users. This is considerably less than the percentage assumed by hospital officials.

CHAPTER VIII

SUMMARY

A. The primary hypothesis was that a large number of patients who utilise the Emergency Department at the Janeway Child Health Centre, St. John's, Newfoundland, are of a non-urgent nature. This hypothesis was supported by the study in that 58.1 percent of the visits were considered as non-urgent by medical classifiers.

B. Little or no correlation was found in the study between non-urgent users and the following characteristics:

1. Sex of patient
2. Age of patient
3. Education of parents
4. Socioeconomic category of parents
5. Social agency affiliation
6. Distance to emergency department
7. Distance to nearest private physician
8. Age of mother
9. Number of children in household
10. Accessibility of emergency department
11. Mode of transport to emergency department
12. The lack of a family doctor.

C. A high degree of correlation was indicated in the study between non-urgent users and the following characteristics:

1. Frequency of use of emergency department
2. Referral to emergency department by private doctor
3. Referral to emergency department by emergency department doctor for follow-up visit
4. Patients who always use the emergency department and do not consider using a private physician
5. Patients who felt the visit recorded was not an "emergency"
6. Patients who felt that comprehensive medical care back-up was available at hospital.

D. Conclusions

A high percentage of cases in the emergency department are of a non-urgent nature (58.1%). This is similar to findings reported elsewhere in the literature. At the Janeway Child Health Centre where this study was conducted, this problem is accepted and, to some extent, catered for by the creation of a "walk-in-clinic" to deal with non-urgent patients. A follow-up study to that outlined herein should be conducted to determine whether or not the existence of a "walk-in-clinic" is increasing the utilisation by non-urgent cases.

Contrary to opinions expressed by hospital officials, social agency involvement and/or a low socioeconomic status did not produce a large volume of users in any category nor did they utilise the emergency department for non-urgent matters to any greater degree than the entire user population. Also contrary to opinions expressed by hospital officials, a rather large number (11%) of users were those who were asked to return to the emergency department.

This study was not intended to offer a course of action for correcting or modifying the problem. Rather it was produced to isolate the factors contributing to the increasing demand on hospital emergency departments. It is hoped that this report will add to the general body of knowledge already existing on the subject and add to the specific information that exists at the Janeway Child Health Centre.

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APPENDICES

APPENDIX A

SPREAD OF SAMPLE TIMES DURING SAMPLE PERIOD
SEPTEMBER 3, 1974 TO OCTOBER 18, 1974.
DEVELOPED BY UTILISATION OF
RANDOM NUMBERS

TIME PERIOD CODES

a = 0800 to 1059 hours
b = 1100 to 1359 hours
c = 1400 to 1659 hours
d = 1700 to 1959 hours
e = 2000 to 2259 hours
X = random numbers assigned

SEPTEMBER		TIME PERIODS				
Day	Date	a	b	c	d	e
Tues	3	1	2 X	3 X	4	5
Wed	4	6 X	7	8	9 X	10 X
Thurs	5	11	12	13	14	15
Fri	6	16	17	18 X	19	20 X
Sat	7	21	22 X	23 X	24	25
Sun	8	26	27	28	29	30
Mon	9	31 X	32	33	34	35
Tues	10	36	37 X	38	39	40 X
Wed	11	41	42	43	44	45
Thurs	12	46	47	48	49	50
Fri	13	51 X	52	53	54	55
Sat	14	56	57	58 X	59	60
Sun	15	61	62	63	64	65
Mon	16	66	67	68	69	70
Tues	17	71	72	73	74	75
Wed	18	76	77	78	79	80

SEPTEMBER (continued)		TIME PERIODS				
Day	Date	a	b	c	d	e
Thurs	19	81	82	83 X	84	85
Fri	20	86	87	88	89	90
Sat	21	91	92	93	94	95
Sun	22	96	97	98 X	99	100
Mon	23	101	102	103	104	105
Tues	24	106	107 X	108	109	110
Wed	25	111	112 X	113	114	115
Thurs	26	116	117	118	119	120
Fri	27	121	122	123	124	125 X
Sat	28	126	127	128 X	129	130
Sun	29	131 X	132	133	134	135 X
Mon	30	136	137	138	139	140
OCTOBER						
Tues	1	141	142	143	144	145
Wed	2	146	147 X	148	149	150
Thurs	3	151	152	153	154 X	155
Fri	4	156	157	158	159	160
Sat	5	161	162	163	164	165
Sun	6	166	167	168	169	170
Mon	7	171 X	172	173	174	175
Tues	8	176	177	178	179 X	180
Wed	9	181	182	183	184	185
Thurs	10	186	187	188	189	190 X
Fri	11	191	192	193	194	195
Sat	12	196 X	197	198	199	200 X

OCTOBER (continued)		TIME PERIODS				
Day	Date	a	b	c	d	e
Sun	13	201 X	202	203	204	205
Mon	14	206	207	208	209	210
Tues	15	211	212	213	214	215
Wed	16	216	217	218	219	220
Thurs	17	221	222	223	224	225

APPENDIX B

Questionnaire Format

The following statement was first read to each respondent:

"The Community Medicine Division of the Faculty of Medicine of Memorial University in co-operation with the Janeway Child Health Centre are conducting a survey of Emergency Department services. The purpose of the survey is to learn more about the availability of health care in the community.

This visit will take only a few minutes and I want to assure you that these questionnaires will be used for statistical purposes only. All your answers will be held in strictest confidence."

QUESTIONNAIRE

PATIENT INFORMATION:

1. LAST NAME:
2. FIRST NAME:
3. MIDDLE NAME:
4. ADDRESS:
5. CITY:
6. TELEPHONE:
7. MCP NUMBER:
8. OUT-PATIENT NO.
9. DATE OF BIRTH: Day Month Year
10. AGE:

11. SEX - 1 MALE: ☐
2 FEMALE:

12. TIME OF ARRIVAL AT HOSPITAL: ☐☐☐☐

13. DAY OF THE WEEK: ☐
1 Sun. 3 Tues. 5 Thurs.
2 Mon. 4 Wed. 6 Fri. 7 Sat.

14. BIRTH ORDER OF PATIENT: ☐☐

15. MOTHER'S FIRST NAME: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

16. MOTHER'S LAST NAME: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

17. MOTHER'S AGE: ☐☐
(OD = No Answer; 01 = Dead)

18. FATHER'S FIRST NAME: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

19. FATHER'S LAST NAME: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

20. RELATIONSHIP TO PATIENT: ☐
1. Father 3. Brother/Sister 5. Friend/Neighbour 6. Other Relative _____ (Specify)
2. Mother 4. Grandparent 7. Other _____ (Specify)

We are interested in your feelings regarding the availability of health care in the community.

1. What is the patient's usual source of medical care? (Interviewer may prompt with "... the source of medical care you use most often".)

- private doctor [1]
- emergency service [2]
- out-patient department [3]
- other (specify) [4]

_____

- none [5]
- D.K. [8]
- N.R. [9]

2. What is the usual source of medical care for your family?

- same doctor as # 1 [1]
- other private doctor [2]
- emergency service [3]
- out-patient department [4]
- other (specify) [5]

_____

- none [6]
- D.K. [8]
- N.R. [9]

3. Do you feel that there are enough doctors in the area where you are living to handle the medical needs of the people there?

- Yes [1]
- No [2]
- D.K. [8]
- N.R. [9]

4. Do you feel this case was an emergency?

- Yes [1]
- No [2]
- D.K. [8]
- N.R. [9]

5. When did you first recognise this problem?

- immediately [1]
- within 12 hours [2]
- within 24 hours [3]
- within 48 hours [4]
- over 48 hours [5]
- D.K. [8]
- N.R. [9]

6. About how far away is the nearest doctor's office from where you live (travelling per auto)?

- less than 15 min. [1]
- 15 min. - 30 min. [2]
- 30 min. - 60 min. [3]
- over 60 min. [4]
- D.K. [8]
- N.R. [9]

7. It is believed that there is a shortage of doctors in private practice. If it were possible for everyone to have his own family doctor, would you prefer to use his services or would you rather use another source of health care?

- R prefers family doctor [1]
- R prefers other source [2]
- None [3]
- D.K. [8]
- N.R. [9]

SHOW CARD

8. It is often very difficult for people to choose a family doctor. Supposing you had this problem, how would you go about solving it? Would you ...

r

- ask a friend or relative 1
- ask at a hospital 2
- look up list of doctors in telephone book 3
- phone or ask at Newfoundland Medical Association 4
- go to a doctor's office and ask there 5
- D.K. 8
- N.R. 9

9. What is the main reason you would give for not using a private doctor for the patient this time?

FREE ANSWER

Code

- There are no family doctors in the area	0 1
- It is difficult to get appointments within a reasonable time with family doctor	0 2
- Doctor couldn't be reached at nights or on weekends when he was needed	0 3
- Doctor in the area has very large practice and was/is unable to accept any new patients	0 4
- The doctor R was using has moved out of the area (has retired or deceased).	0 5
- R is new to the city (or to that area of the city) and has no family doctor.	0 6
- R has always gone to emergency departments without considering a private doctor	0 7
- R doesn't "like" the doctor in the area	0 8
- Hospital Emergency department is closer than doctor's office	0 9
- Doctor told us to come	1 0
- Felt Emergency Department Services were needed	1 1
- Emergency Department Doctor asked you to come back	1 2
- Other (specify) _____	1 3
- N.A.	9 7
- D.K.	9 8
- N.R.	9 9

10. In general, how would you say the patient's health has been this past year?

- excellent [4]
- good [3]
- fair [2]
- poor [1]
- D.K. [8]
- N.R. [9]

11. Illness and Physician Utilisation

11.1 Has the patient been sick during the last two weeks?

- Yes [1]
- No [2]
- D.K. [8]
- N.R. [9]

If yes, ask 11.2 and 11.3

11.2 Did he/she go to a private doctor or clinic?

- Yes [1]
- No [2]
- N.A. [7]
- D.K. [8]
- N.R. [9]

11.3 How many times?

Code number [ ]

- N.A. [7]
- D.K. [8]
- N.R. [9]

Perceived Appropriate Reaction

12. Here are some statements on when you would take your child to see a doctor. Some people say you should to to a doctor at the first signs of trouble, others believe that most symptoms usually go away and you should wait until you are sure there is something wrong. For each of the following symptoms, would you agree or disagree that you should see or telephone a doctor for your child.

	Agree	Undecided	Disagree	N.R.	
- Sore throat or running nose for a couple of days, but no fever.	1....	2....	3....	9...	☐
- Sore throat or running nose with a fever as high as 102°F for two days or more.	1....	2....	3....	9...	☐
- Diarrhea (loose bowel movements) for about a week.	1....	2....	3....	9...	☐
- Feeling tired for several weeks for no special reason.	1....	2....	3....	9...	☐
- Unexplained loss in weight.	1....	2....	3....	9...	☐

The following questions are about the emergency department at the Janeway Child Health Centre:

13. About how many times in the past year has your family used the emergency department of the Janeway Child Health Centre (include this visit)? ☐☐

- Code the number ☐☐
- D.K. 8
- N.R. 9

14. (If the family has used emergency department for longer than one year). Would you say that you are using the emergency department more often, about the same or less often as you did a year ago?

- more often [1]
- about the same [2]
- less often [3]
- N.A. [7]
- D.K. [8]
- N.R. [9]

15. About how long would or did it take you to get to the Janeway Emergency Department by car from the time you thought treatment was necessary?

- less than 15 min. [1]
- 15 min. - 30 min. [2]
- 30 min. - 60 min. [3]
- over 60 min. [4]
- D.K. [7]
- N.R. [8]

16. What kind of transportation do you use to come to the emergency department? That is, do you walk, take a bus, use a car or travel by some other means?

- walk	1
- bus	2
- car	3
- taxi	4
- ambulance	5
- other (specify)	6
- D.K.	8
- N.R.	9

17. How did you first learn about the Janeway Emergency Department?

- self	01
- relatives	02
- friends, neighbours	03
- another emergency service	04
- public health nurse	05
- welfare agency	06
- private/family doctor	07
- in-patient service	08
- out-patient department	09
- news media	10
- other (specify)	11
- D.K.	98
- N.R.	99

18. In the last two years there has been an increase in the number of patients attending the emergency department at the Janeway. We are interested in what you think are the most important reasons for this increase.

I will first read a few statements concerning the emergency department to you and ask if you agree, disagree or feel undecided about each statement.

Read - The main reason more patients are using the emergency department is that:

	Agree	Undecided	Disagree	N.R.	
- there is an increase in the illness in the community	1....	2....	3....	9...	☐
- there are not enough private doctors available making it difficult to find a doctor or get an appointment	1....	2....	3....	9...	☐
- it is much easier to get seen and the waiting period is less in the emergency department	1....	2....	3....	9...	☐
- the medical treatment at the emergency department is better than the treatment one gets with a private doctor	1....	2....	3....	9...	☐
- more doctors are referring their patients to the emergency department	1....	2....	3....	9...	☐
- all the various medical services such as lab tests and X-Rays can be done while the patient is at the emergency					

	Agree	Undecided	Disagree	N.R.	
department without the bother of travelling back and forth between the doctor's office and the hospital	1....	2....	3....	9...	
- people are much more health conscious than they used to be	1....	2....	3....	9...	
- the emergency department is closer than the doctor's office	1....	2....	3....	9...	
- parking is easier at the hospital	1....	2....	3....	9...	

Finally we would like to know one or two things more about the families we interview, <u>of course all information is confidential</u>.

19. Are you now ... [ ]

- married 1
- widowed 2
- divorced 3
- separated 4
- never married 5
- other (specify) 6

_____

- D.K. 8
- N.R. 9

20. Who is the household head?

- respondent [1]
- spouse [2]
- in-laws [3]
- parents [4]
- other (specify) [5]

_____

- D.K. [8]
- N.R. [9]

21. How many persons living in your household?

- Code the number [ ][ ]

(Include R in final count if R is also a dependant.)

22. How many other children under 16 in the patient's family besides patient? (Instructions for coding - Include patient in final count.)

- Code Total Number [ ][ ]
- N.A. [9][7]
- D.K. [9][8]
- N.R. [9][9]

SHOW CARD

23. I will show you a list of social agencies. Would you tell me if you or your family are involved with any of these?

- Welfare 1
- Child Welfare 2
- Hospital Social Worker 3
- Family Court 4
- Other (specify) 5

- None 6
- D.K. 8
- N.R. 9

Education and Employment

24. What is the highest grade you completed in school? (If R is married) - What is the highest grade in school your spouse has completed?

R
S

Coding:

	RESPONDENT	SPOUSE
Elementary	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
High School	09 10 11	09 10 11
College	12 13	12 13
	14 15 16	14 15 16
Grad.School	17 M.A. 18 Ph.D.	17 M.A. 18 Ph.D.
	D.K. 98	N.A. 97
	N.R. 99	D.K. 98
		N.R. 99

25.1 Do you now hold a job, or are you looking for a job?

- No, keeping house	1
- Looking for a job	2
- Yes, full time	3
- Yes, part time	4
- Combinations	5
- No, going to school	6
- N.R.	9

25.2 What do you or your spouse do? (Head of household)

Coding:

- Professional Manager - Technical	01
- Sales Clerical	02
- Skilled Trades	03
- Semi-skilled Services	04
- Fishing, Mining, Labour	05
- Housewife	06
- N.A.	08
- N.R.	09

Thank you for your time.

26. Interviewer: Please code:

Emergent	1
Urgent	2
Non-urgent	3

APPENDIX C

CLASSIFICATION OF RESPONDENT BY EMPLOYMENT

CLASSIFICATION

1. Professional, Managerial, Technical:
   - (a) Self-employed contractor
   - (b) Chief Negotiator, Dept. of Finance
   - (c) Teacher
   - (d) Religious Sister
   - (e) University Student
   - (f) Clergyman
   - (g) Proprietor C.T.C.
   - (h) Chartered Accountant
   - (i) Chief of Fire Department
   - (j) Research Assistant
   - (k) Insurance Manager
   - (l) Personnel Director
   - (m) General Manager
   - (n) Shipping Master
   - (o) Surveyor
   - (p) Fire-Lieutenant
   - (q) Financial Manager
   - (r) Furnace oil distributor (own business)
   - (s) Nurse
   - (t) CNR Captain
   - (u) Manager & owner grocery store
   - (v) Assistant Manager

2. Sales Clerical:
   - (a) Car Salesman
   - (b) Accountant
   - (c) Assistant Accountant
   - (d) Secretary
   - (e) Draftsman
   - (f) Storekeeper owner
   - (g) Office Supervisor
   - (h) Public Relations
   - (i) Employment Relations Officer
   - (j) Manager at Retail Store

Sales Clerical (continued)

(k) Book-keeper
(l) Auditor
(m) University Student
(n) Instructor College of Fisheries
(o) Insurance Salesman
(p) Telephone Operator Service repairs
(q) Salesman
(r) Buyer
(s) Research Secretary
(t) PBX service operator

3. Skilled Trades:

(a) Self-employed contractor
(b) Foreman
(c) Mason
(d) Builds & sells homes
(e) PBX Repair
(f) Dispensary Optician
(g) Heavy-duty Equipment operator
(h) Painting Contractor
(i) Cook
(j) Band Player
(k) Foreman mechanic
(l) Undertaker
(m) Outboard marine mechanic
(n) Machine operator
(o) Electronic technician
(p) Elevator Co. representative (repairs)
(q) Computor operator

4. Semi-Skilled Services:

(a) Penitentiary Guard
(b) Truck driver
(c) Taxi driver
(d) Carpenter
(e) Waitress
(f) Bartender
(g) Sales Clerks
(h) Meat Clerks
(i) Psychiatric Nursing Assistant
(j) Policeman

Semi-Skilled Services (continued)

(k) Telephone Operator
(l) Domestic Staff
(m) Mechanic
(n) Physiotherapy Aide
(o) Cement Finisher
(p) Checker
(q) Fork lift driver
(r) Bus driver
(s) Sign painter
(t) Boarding-house keeper
(u) Accounting Clerk
(v) Stationary engineer
(w) Customs & Excise clerk
(x) Time Keeper
(y) Roofer
(z) Pipe fitter
(aa) Controller liquor store

5. Fishing, Mining, Labour:

(a) Janitor
(b) Bench Carpenter
(c) Maintenance Man
(d) Farming
(e) Public works fireman
(f) Longshoreman
(g) Truck driver
(h) Boiler maker

6. Housewife:

(a) Nurse, now looking after baby, no immediate plans to return

7. N.A:

(a) Student